

FLIGHT

The
AIRCRAFT
ENGINEER
AND
AIRSHIPS

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

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DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:—

- April 23.... Visit to National Physical Laboratory, Teddington. Inst. Ae. E.
April 25.... Aero Golfing Society Team Match, Oxhey Golf Club.
May 31–June 9 Third Czecho-Slovak International Aeronautical Exhibition, Prague
June 15.... Gordon Bennett Balloon Race, Belgium.
June 21.... F.A.I. Conference Opens, Paris.
July 24–Aug. 10 Tour de France for Light 'Planes.
Aug. 4 Aerial Derby at Lympe
Sept. 8–13 Light 'Plane Competitions at Lympe

INDEX FOR VOL. XV.

The Index for Vol. XV of FLIGHT (January to December, 1923) is now ready, and can be obtained from the Publishers, 36, Great Queen Street, Kingsway, W.C. 2. Price 1s. per copy (1s. 1d. post free).

EDITORIAL COMMENT.



IN 1922 gliders. In 1923 light aeroplanes. In 1924 light aeroplane two-seaters and light sea or water plane single-seaters. That appears to summarise the stages of development. On this basis it is permissible to assume that in 1925 we shall see the light waterplane two-seater. When and if that day comes it will mean a great deal in the history of British aviation. Not only are natural aerodromes in the form of sheltered harbours, lakes and bays to be found all around our coasts, on which small waterplanes can alight, but in the Dominions conditions are, generally speaking, even more favourable for this type of craft. Not only so, but, as a rule, existing communications are by no means as well developed as they are at home, and the waterplane cruising at even 50 m.p.h. will by comparison appear quite a hustler. One can easily imagine the low-power waterplane in a number of rôles—the carriage of small quantities of mail to scattered and outlying districts; as auxiliary feeders to main air routes; as private runabouts for well-to-do people who wish to see their district from a new point of view; as conveyances for doctors, business men and others whose time is valuable. The possibilities are almost endless, and it is well worth examining closely the technical problems of the low-powered waterplane. In the term waterplane we include, of course, both the twin-float and the flying-boat types. We are not prepared to say which of the two types shows most promise at the present moment, and as a matter of fact the old controversy, boat or float, is likely to be revived in connection with the light waterplane.

In the meantime it is satisfactory to be able to record that already a start has been made with the flying boat type, as will be gathered from the illustrated description of the Short light flying boat in this issue of FLIGHT. Apart from being the first "light" waterplane, this machine holds the distinction of being the first twin-engined light 'plane in the world, and the first all-metal British flying boat.

As it incorporates so many novel features, more than ordinary interest attaches to the machine, and its behaviour will be extremely well worth watching.

Built for use in Australia, the duralumin construction should have many advantages, and should not be likely to give the troubles which an all-wood machine might be expected to give. On the other hand, the metal construction may give rise to certain other difficulties. We only say "may," although we are by no means assuming that it will. In spite of the objections that have been raised in some directions to the use of duralumin, it should not be forgotten that Short Brothers have had very long experience in using and working this metal, and have evolved forms of construction particularly suitable to the peculiar characteristics of it. For instance, before finally deciding to build the "Silver Streak," which was exhibited at Olympia in 1920, exhaustive tests were carried out on a section of a fuselage. Although not intended to be watertight, this structure was up-ended and filled with water, and a large weight was slung inside and hoisted up and down so as to act as a pump. Although the stresses set up were considerable the leakage was infinitesimal. This was in a fuselage intended for a land machine, with no special attempt having been made to provide watertight joints. In the little flying boat described this week more attention has been paid to this question, and a mooring test of 24 hours' duration failed to reveal any leak worth bothering about. The eggcupful which did leak in during the 24 hours got past a rivet not quite tightened up, and it should be possible to stop effectively even this minute leakage. The fact that the metal hull will not soak up water as does a wood hull should be a big point in its favour, and the machine now nearing completion at Rochester should provide very useful data on such points as the manner in which the hull stands up to the shocks of alighting, etc.

On the question of corrosion it may be mentioned



WORLD FLIGHT PROGRESS

THERE is little to report on the progress made during the past week in the two attempts to fly round the world now being made by Great Britain and the U.S.A., and we are not, therefore, publishing our map diagram in this issue.

Squadron-Leader MacLaren and his crew are still on the Island of Corfu with their Vickers-Napier amphibian flying boat. A new Napier "Lion" engine, and a spare float, were dispatched during the week-end, and were expected to arrive at Corfu on Tuesday. The machine has been beached, and all is in readiness for installing the new engine as soon as it arrives. All being well, therefore, it is probable the flight will be resumed some time this week.

The Americans, who arrived at Prince Rupert, B.C., on April 6, left this place on Thursday morning, April 10, and arrived the same day at Sitka, Alaska, having covered a distance of about 300 miles. The latest report states they arrived at Seward, Alaska, from Sitka—a distance of 600 miles—on April 13, but we cannot say whether or not this was accomplished in one "hop."

The American team, of four Douglas biplanes (400 h.p. Liberty), consists of Major F. L. Martin, Lieuts. L. H. Smith, L. Wade and E. H. Nelson, and mechanics.

The British flight is made up of Squadron-Leader A. S. C. MacLaren, Flying-Officer J. Plenderleith and Sergeant Andrews, on a Vickers (Napier "Lion") amphibian flying boat.

Respective mileage (approximate) completed to date—*American*, 2,200 miles. *British*, 1,500 miles.

that a duralumin plate suspended in such a way that at high tide it was covered with water while at low tide it was swinging in the air (in other words about the worst possible conditions) was left out for nine months, and at the end of that time showed no signs of corrosion, while strength tests on a piece cut from the plate showed the material to give the same figures as before the submersion. A steel plate suspended side by side with the duralumin had practically disappeared.

Quite apart from the special form of construction employed, the Short machine is of interest for the fact that its total of 40 h.p. or so is divided among two engines. The power loading with both running is not unduly high, especially in view of the fact that the wing loading is under 5 lbs./sq. ft., and even with one engine throttled down the machine should be capable of flying level. As the propeller centres are only 6 ft. apart, the turning moment with one engine stopped should be within the capacity of the rudder to counteract, and it may be assumed that the splitting up of the power plant into two units will provide an extra insurance against forced landings, especially as the petrol system is of the simplest type, with each engine an independent unit with its tank mounted immediately behind it and no pumps to go wrong.

In connection with the proposed formation of a National Seaplane or Waterplane Club (of which, by the way, we understand His Grace, the Duke of Sutherland has consented to become President), the low-power waterplane offers possibilities, and when the present machine has shown what it can do, it is to be hoped that others will be forthcoming, and that types of craft peculiarly suitable for use by members of the club will be produced. Probably the next step will have to be a two-seater, but the initial experiments may well be carried out with single-seaters, and in this class the Short marks an excellent beginning.



"R.38" Memorial Unveiled

THE monument erected in the Western Cemetery at Hull in memory of the 44 officers and men of the Royal Air Force and of the United States Navy and others who were lost when the airship "R.38" fell into the Humber Estuary in August, 1921, was unveiled on Friday, April 11.

The memorial was unveiled by Air Vice-Marshal Sir Vyell Vyvyan, Air Officer Commanding Coastal Area, R.A.F., and was dedicated by the Bishop of Hull, assisted by the Rev. H. D. L. Viener, Chaplain-in-Chief to the R.A.F., and the Rev. W. Moffatt, Staff Chaplain. Members of the R.A.F. formed a guard of honour, and after the sounding of the Last Post and the Reveille the Anthem of the United States and "God Save the King" were sung.

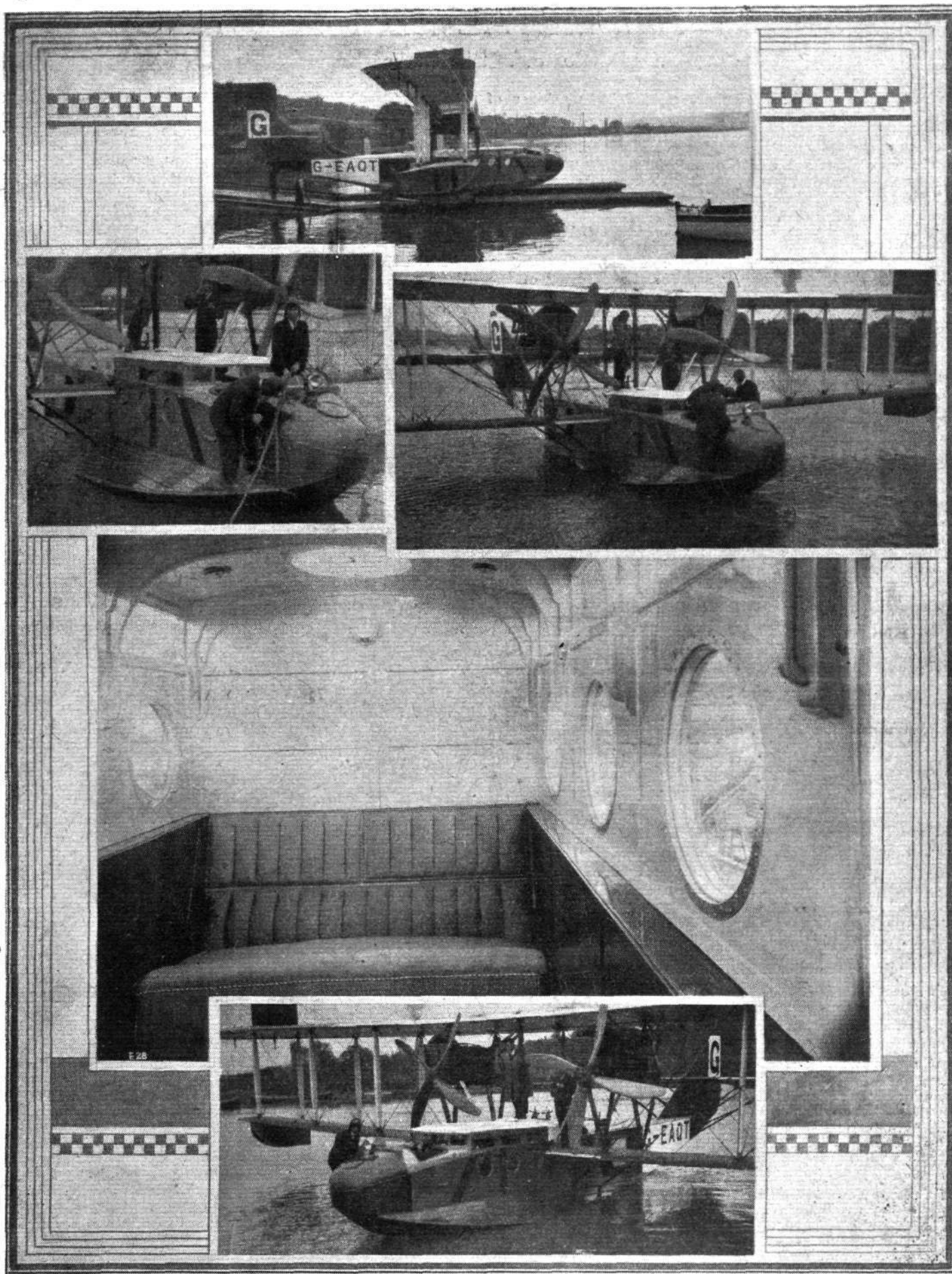
The Royal Tournament

THE opening day of the Royal Tournament at Olympia, in aid of the Service Charities, is May 22, Major-General Lord Ruthven, as G.O.C. London District, occupying the post of Chairman this year for the first time.

The programme itself will make a strong appeal to the public. The Royal Air Force will have an equally strong item in the bill this time, and one which will show how our home defence units work, in place of the popular airship "turn" which attracted so many last year.

Another interesting item is the restoration to the programme of the Royal Horse Artillery musical drive, and the central pageant will break clean away from precedent while still historically recording in accurate dress and arms some of the greater incidents in the history of our commonwealth of nations.

The Guards, Marines, Seamen, Airmen, Hussars, R.A.S.C. and others contribute. The entries to the jumping competitions for the King's and Prince of Wales's cups are coming in from all quarters of the globe.



A CONVERTED F5 FLYING BOAT: A couple of years ago Short Brothers built this machine for Mr. Lebbeus Hordern of Australia for his private use, and the machine has done good service as an aerial yacht. Mr. Hordern has now ordered the small all-metal flying boat described in this issue. The large view shows a portion of the roomy cabin. In the top photograph may be seen the pontoons used by Shorts in getting into and out of their seaplanes, loading up with fuel, etc. The flying boat is brought between the pontoons, and hull as well as engines can be easily reached.

THE SHORT ALL-METAL LIGHT FLYING BOAT

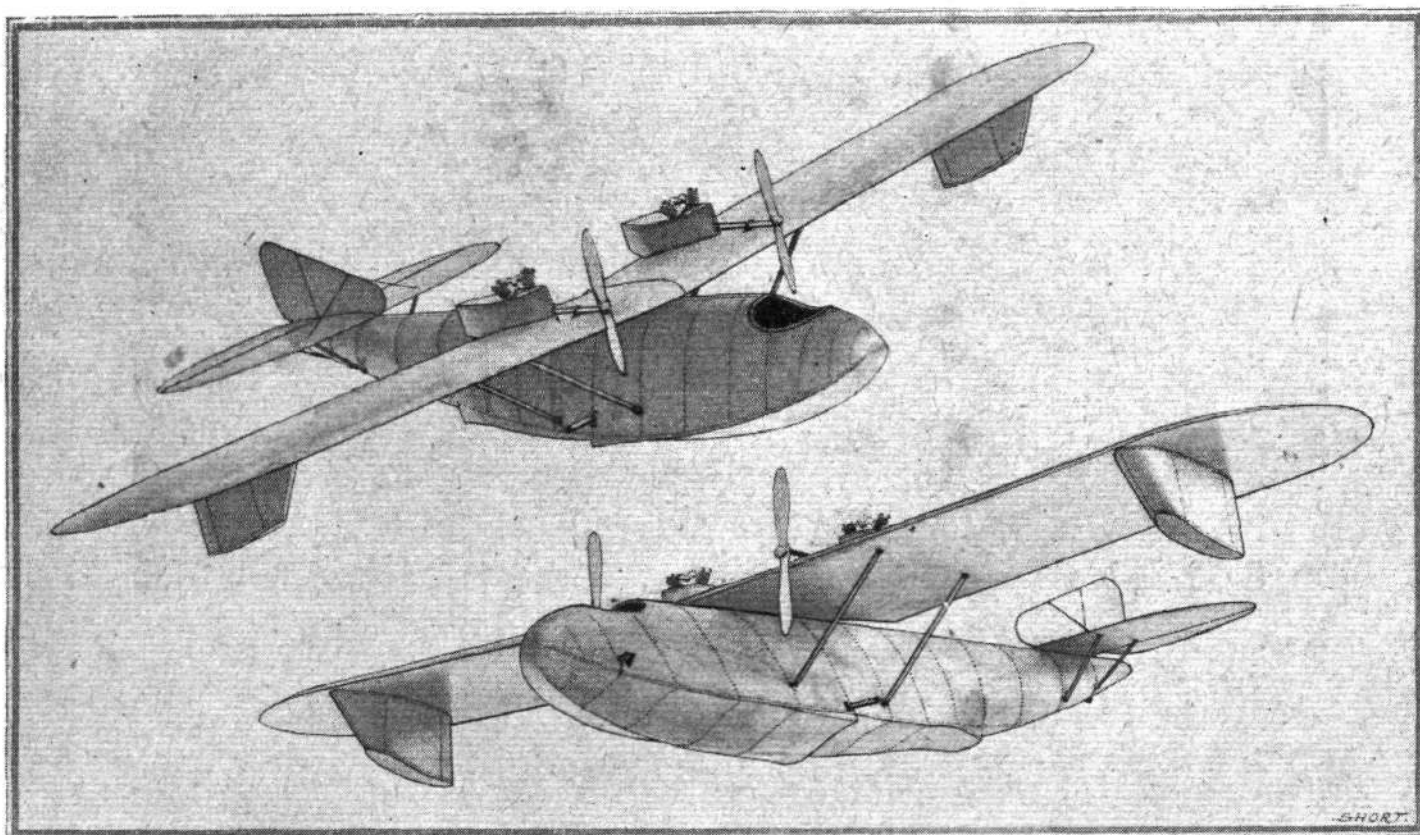
Two 696 c.c. Blackburne Engines

In many ways one of the most remarkable machines of modern times is the little all-metal flying boat now nearing completion at the Rochester works of Short Bros. To begin with, the machine is built entirely of metal (with the exception of the wing covering), and the material mainly used in the construction is duralumin. This, in itself, stamps the machine as being out of the ordinary, as this material has not hitherto been used to any great extent in the construction of aeroplanes. Its application to the construction of a flying boat hull is another innovation in the history of British aviation, and in the Short machine this metal is used both for the framework and for the covering of the hull. Then there is the fact that the machine under review is the first light seaplane to be built in this country, and probably in the world. Not only so, but the twin-engined arrangement familiar from larger boats has been adopted, although the machine is a monoplane—yet another innovation, at any rate in modern times. It will thus be seen

"Silver Streak" was generally admired at the Show, and was recognised as marking a distinct step forward. Incidentally the machine was the first all-metal aeroplane to be designed and built in England.

In modern times the "Silver Streak" has been followed by a later development, the Short "Springbok," in which many of the constructional features of the "Silver Streak" have been retained, while others, notably in the wing construction, have been altered to meet Air Ministry requirements.

From the foregoing it will be seen that Short Bros. have done a great deal of pioneer work in this particular form of construction, and it is gratifying to be able to record that the successes attained are being recognised by the Air Ministry, who have for some time been following closely the progress made, and who have now sanctioned the construction of further machines incorporating the special form of metal construction evolved at Rochester. There is thus good



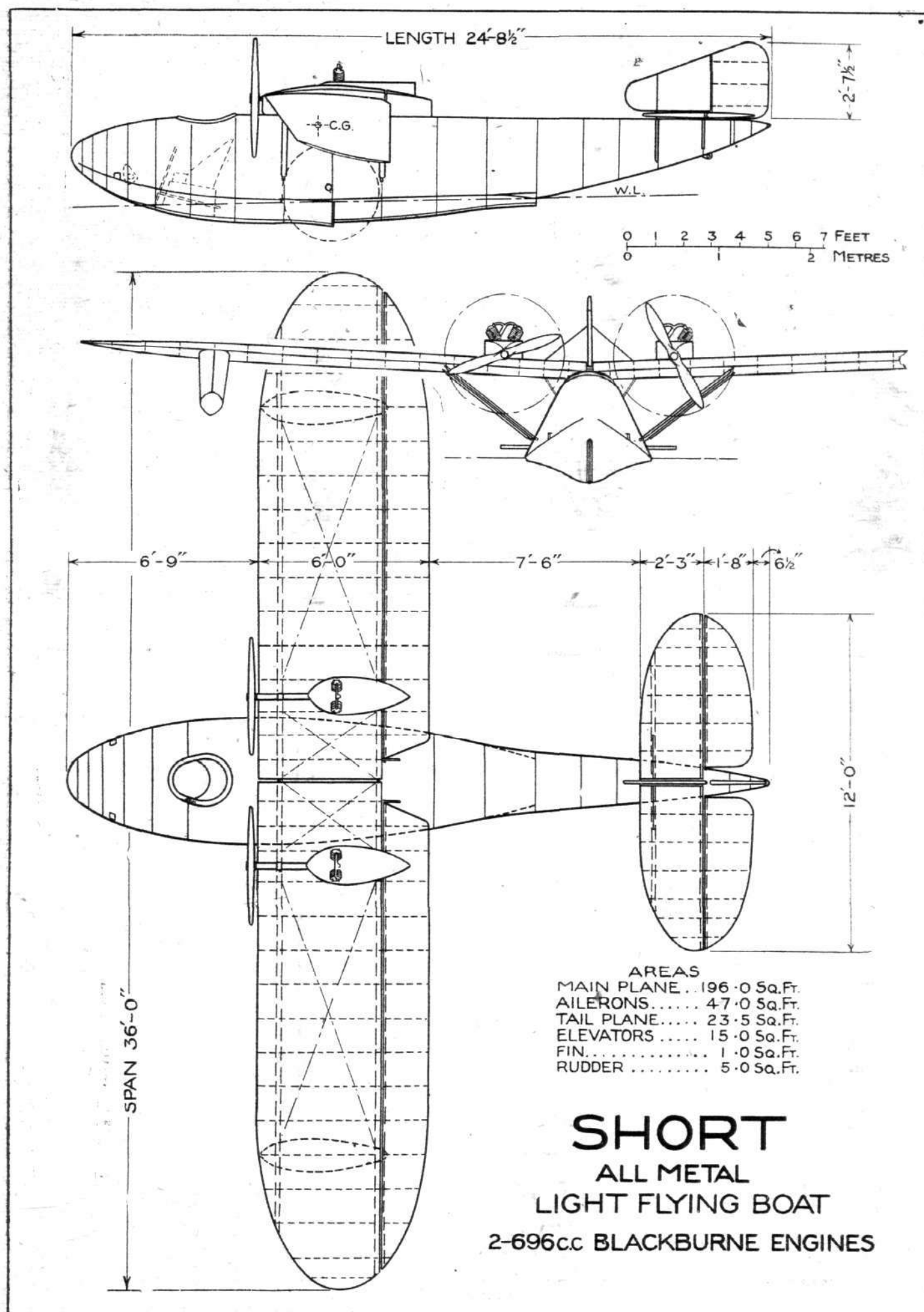
THE SHORT LIGHT FLYING BOAT: Two views of a scale model of the machine. These give a good idea of the general appearance and "clean" lines.

that there is no lack of interest in the light flying boat which, through the courtesy of Short Bros., we were permitted to examine recently, and which forms the subject of the present article.

Before commencing a description of the Short all-metal light flying boat, it will be as well to recall briefly the stages in the development which preceded the construction of the present machine. To begin with, it will be remembered that Short Bros. constructed rigid airships during the War, and that they, therefore, have had considerable experience in duralumin construction. Then, at the Aero Show at Olympia in 1920, they exhibited a biplane two-seater with Siddeley "Puma" engine. This machine, the "Silver Streak," was built entirely of metal, mainly of duralumin, but with steel tube wing spars. Even the wing covering was of duralumin, applied in a very ingenious fashion evolved and patented by Short Bros. The fuselage construction was of simple form, and a feature of it was that the sheet duralumin covering was made to take its share of the stresses set up in the structure. Briefly the principle employed was that the shape, or rather cross-section, of the fuselage was provided by the formers, to which the covering was riveted. The

cause to think that in this matter of duralumin construction this country will soon take a leading place, as it has already done in steel construction, and that the pioneer work done by Short Bros. will reap the reward it deserves.

In the meantime the light flying boat which forms the subject of this article should serve as a very good full-scale experiment into the possibilities of the low-power seaplane, as well as demonstrating the merits of the particular form of construction adopted. The way in which this machine came to be built is rather interesting, and a brief reference to its inception may be made here. Two or three years ago a wealthy Australian, Mr. Lebbeus Hordern, purchased from Short Bros. a converted "F.5" flying boat with two Rolls-Royce "Eagle" engines. This machine, photographs of which are published elsewhere in this issue of *FLIGHT*, was provided with a roomy cabin in which passengers could travel in comfort, and we understand that the machine gave excellent results, and was used quite a good deal out in Australia. Having become interested in the light 'plane type of machine, but desiring a seaplane, and more particularly a flying boat, Mr. Hordern asked Short Bros. if they could supply a twin-engined light 'plane flying boat. Mr. Oswald Short cabled

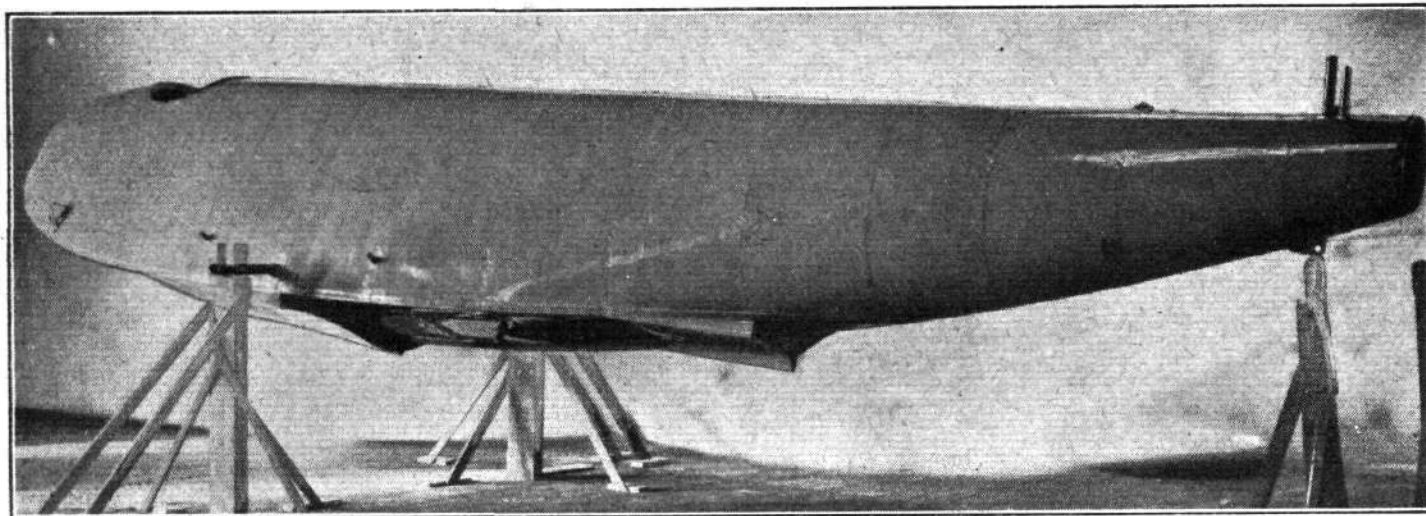


THE SHORT ALL-METAL LIGHT FLYING BOAT: General arrangement drawings to scale.

a reply in the affirmative, and after further negotiations the work of designing and building was put in hand. The result is the machine shown in the accompanying scale drawings and photographs.

The Short light flying boat is a monoplane with thin wing section (R.A.F. 15, to be precise), braced by short struts to the hull. The two Blackburne engines are similar to those which did so well at Lympe last year, and are mounted on the wings, each with its streamline cowling behind it.

engine stop, the turning moment will probably not be so great but what the rudder can take care of it, although with but one engine running the power loading will naturally be very high, and the machine probably only just able to fly level. Carrying the comparison farther, whereas in the Dornier short "wing roots" growing out from the sides of the hull are used for maintaining lateral stability on the water, in the Short boat wing tip floats of usual shape are employed. Again, the Dornier hull is of approximately

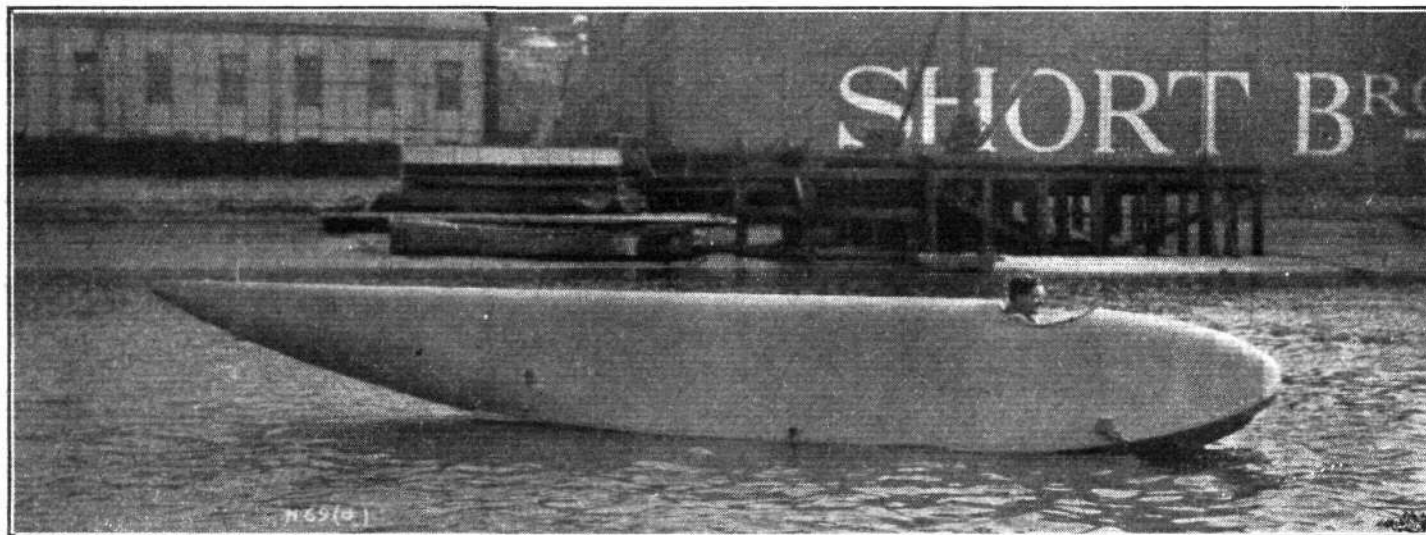


THE SHORT LIGHT FLYING BOAT : View of the hull, showing steps, etc.

As the engines are mounted fairly far back on the wing, extension shafts have been fitted so as to bring the two tractor screws forward to the leading edge. The propeller shafts are merely extension shafts, as there is no reduction gearing and the propellers run at engine speed. While on the subject of the disposition of the power plant and propellers it is interesting to compare the Short monoplane with the small Dornier "Libelle." Both machines are built of duralumin, but here the similarity ceases, the general designs being quite dissimilar while the detail construction has but few points in common. In the Dornier a small Siemens radial

rectangular section, while the Short boat has a pronounced "tumble-home" in front, running into a rounded section aft. It is of interest to compare the two machines, because the German flying boat carries two people with an engine of about 55 h.p., while the two Blackburne engines of the Short will probably develop something like 40 h.p. between them, and carry pilot only. Thus both machines represent very economical flying as regards power expenditure, however much they differ otherwise.

The hull of the Short light flying boat is of a construction very similar to that first introduced in the "Silver Streak"—



THE SHORT LIGHT FLYING BOAT : The duralumin hull on the water. After being moored out for 24 hours only an egg-cup full of water had leaked in.

engine is mounted on the centre-section of the front spar, and drives a single tractor screw. In order to get the necessary propeller clearance, and to keep the centre of resistance in reasonable proximity to the centre of thrust, the monoplane wing of the Dornier is raised a considerable distance above the hull, the occupants sitting, in fact, underneath the wing. In the Short machine, on the other hand, the wing is resting immediately on the boat hull, and the two engines are moved out on the wing. Thus the centre of thrust and the centre of resistance are both lower than in the Dornier, while the distance over propeller centres is only about 6 ft. Thus, should one

that is to say, the frames and "timbers" are rings of duralumin, of L-section, to which are riveted the plates of the covering. The longitudinal stringers do not run through, but merely serve as stiffeners between rings. In the forward portion the plain rings receive the addition of a built-up plate conforming to the transverse shape of the steps or planing bottoms, which latter, as in wood construction, are separate structures and open at the rear so that water can run out when the machine is in the air. The structure inside the hull is entirely confined to these rings, and the whole makes one of the most astonishingly simple

structures we have ever seen. The simplicity and "clean" appearance are, perhaps, the most marked features of the design.

Rings of rather heavier construction are used where external components are attached, as, for instance, where the main planes and tail planes are attached, but even this addition is taken care of without spoiling the simplicity. The space inside the hull is entirely unobstructed, the formers projecting inward from the skin only a couple of inches or less, and there being no other structural members.

The pilot's cockpit is in the extreme nose, and consequently he obtains an excellent view forward. In addition to the usual controls, engine controls, etc., with which the machine is provided, there is a starting lever, or rather two—one for each engine. These levers, except for the fact that they are operated by the hands, act exactly like a kick-starter on a motor-bicycle. At the time of our visit to the works the arrangement was being tested on the bench, and it was found quite easy to start the Blackburne engine by this means. Thus, on the little flying boat the pilot should be able to start his engines without assistance, a fact that might well be of the utmost importance on a cruise.

While speaking of the boat hull of this machine it should be mentioned that when the hull was finished it was taken out on the water, a load of about 800 lbs. was put on board, and the hull was left for 24 hours. At the end of that time it was found that literally only an egg-cup full of water had leaked in. The question of watertightness is, therefore, not apparently a difficult one to solve in metal construction. This in spite of the fact that, unlike Dornier practice, no fabric is used in the seams of the Short boat. How a hull built in this manner will behave after extensive use, with a few bumpy landings, etc., still remains to be seen, but there seems to be very good reason to believe that the duralumin hull will be at least equal to the wooden hull in this respect. Where the metal hull undoubtedly does score is in the total absence of water soakage. We believe that in the case of a large flying boat the amount of water that soaked into the hull amounted to no less than 600 lbs. It will thus be seen that for a boat that is to spend most of its time moored on the water this question of soakage is

of the utmost importance, and this fact alone should entitle the all-metal hull to very careful consideration.

The wings of the Short light flying boat are also of metal, the spars being of corrugated sheet construction and the ribs simple channel sections with lightening holes cut in them. The covering will, however, be fabric doped in the usual way. The two wing halves are bolted to the top of the hull, and are, as already mentioned, braced by two struts on each side. The ailerons are of large area, running the whole length of the wing and being of fairly large chord. They are operated by cranks on the inner ends of the aileron tubes by rods running vertically down into the interior of the hull.

The tail surfaces are of normal shape, and are built of metal tube spars with channel section sheet ribs. The covering is fabric.

To facilitate handling ashore a pair of large-diameter wheels are supplied with the machine. These are carried on an axle which can be pushed into a tube running across the hull in line with and slightly above the main step. Thus one man should be able to handle the machine with ease. For flying the wheels are, of course, unshipped and left behind, or may be carried inside the hull if the user expects to need handling the machine ashore on his journeys.

The Short light flying boat is of more than ordinary interest, and when the flying tests, etc., take place shortly we hope to be able to publish photographs and a report of the trials.

The main dimensions, etc., are shown on the general arrangement drawings. The total loaded weight is expected to be between 800 and 900 lbs., and the speed (estimated) is about 68 m.p.h., with the engines running at 2,500 r.p.m. The two-bladed propellers are of 4 ft. 3 ins. diameter, and run at engine speed. Assuming a total loaded weight of 850 lbs. the wing loading becomes 4.34 lbs./sq. ft., and if the total horse-power is assumed to be 40 b.h.p. the power loading will be 21.25 lbs./h.p. Thus the power loading is by no means exceptionally high, and judged solely on power loading the machine should be able to fly level on one engine, i.e., with a power loading of 42.5 lbs./h.p., especially as the design is a very "clean" one.



The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

COMMITTEE MEETING

A MEETING of the Committee was held on Wednesday, April 9, 1924, when there were present: Lieut.-Col. F. K. McClean, A.F.C., in the Chair; Group-Capt. F. W. Bowhill, C.M.G., D.S.O., R.A.F.; Major-Gen. Sir W. S. Brancker, K.C.B.; Mr. Ernest C. Bucknall; Lieut.-Col. M. O. Darby; Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S.; Lieut.-Col. A. Ogilvie, C.B.E.; and the Secretary.

Election of Chairman.—On the motion of Lieut.-Col. A. Ogilvie, C.B.E., seconded by Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S., Lieut.-Col. F. K. McClean, A.F.C., was unanimously elected Chairman of the Club for the current year.

Election of Vice-Chairman.—On the motion of Lieut.-Col. F. K. McClean, A.F.C., seconded by Mr. Ernest C. Bucknall, Lieut.-Col. John D. Dunville, C.B.E., was unanimously elected Vice-Chairman of the Club for the current year.

Stewards of the Club.—The following were elected the Stewards of the Club for the current year:—

Brig.-Gen. the Duke of Atholl, K.T., G.C.V.O., C.B., D.S.O.

The Right Hon. Lord Hugh Cecil, M.P.

The Earl of Halsbury.

Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S.

Lieut.-Col. J. T. C. Moore-Brabazon, M.C., M.P.

Admiral of the Fleet the Right Hon. Sir Edward Seymour, G.C.B., O.M.

Election of Members.—The following new members were elected:—

Pilot Officer Ronald Hartley Carter.

James Henry Goodwin.

Major Harold Hemming.

Flying Officer Ralph de Heppelle Hutchinson.

Flying Officer John Brayne Lynch.

Ian Roy Taylor.

Offices: THE ROYAL AERO CLUB,
3, CLIFFORD STREET, LONDON, W. 1.
H. E. PERRIN, Secretary.

Croydon or "Wallington" Aerodrome Changes

Big changes and improvements, upon which the Air Ministry will expend £250,000, are to be made at the London Terminal Aerodrome, Croydon, Waddon or "Wallington," as the case may be. Plans have been made to make this aerodrome the finest air terminus in the world. Arrangements have now been made with the Beddington and Wallington Council in respect to Plough Lane, whereby the extension of the aerodrome will be facilitated. A large tract of ground has been acquired, which will double the area of the aerodrome, and a farm has been bought to make room for the new hangars.

All the present air buildings on the 'drome are to be pulled down, and in their place up-to-date Customs houses, waiting-rooms, bonded warehouses, and an hotel are to be erected. The buildings will stand in the centre of the aerodrome, with a big departure and arrival platform arranged in a complete circle round them. Passengers will arrive by motor-car or electric train from London, and will, after passing through the Customs house, descend into subways leading to the different departure platforms. Work on the new hangars is to begin almost immediately.

It is also suggested that the aerodrome should take the name of Wallington instead of Croydon.

NOTICES TO AIRMEN

International Aeronautical Maps : Egypt General Sheet

1. Correction of Maps.

The publication of sheets of the International Aeronautical Maps renders necessary the notification of corrections to the aeronautical information (black plate) which is subject to considerable change. The normal method of notification will be by Notice to Airmen.

Holders of copies of the maps should therefore make any corrections which are notified in Notices to Airmen, and on each occasion when corrections are made should amend the correction date in the bottom right-hand corner of the map. Corrections should preferably be made in red ink.

Anyone in possession of aeronautical information which is not shown on the map and which can be vouched for as accurate, or anyone discovering errors in the map, is invited to communicate full details to the Secretary, Air Ministry (D.D.A.T.), quoting the reference 495104/24.

The first list of corrections to the Egypt General Sheet is given below.

2. Corrections to Egypt General Sheet are given, and should be made to the black plate of the Egypt General Sheet, to bring it into agreement with information available at the end of February, 1924 :—

(a) *Adana*.—This should now be shown as a landing ground, not an aerodrome.

Correction.—Delete "A" under name. Insert "E."

(b) *Ras Sarafand*.—This should now be shown as a landing ground, not an aerodrome.

Correction.—Delete "A" under name. Insert "E."

(c) *En Nasira*.—This landing ground is not now maintained.

Correction.—Delete name and symbol from the map.

(d) *El Afult*.—This landing ground is not now maintained.

Correction.—Delete name and symbol from the map.

(e) *Deraa*.—This landing ground is not now maintained.

Correction.—Delete name and symbol from the map.

(f) *Jerusalem*.—The W/T station is not now maintained.

Correction.—Delete the W/T station symbol.

(g) *Kossaima*.—This landing ground is not now maintained.

Correction.—Delete name and symbol from the map.

(h) *Nekhl*.—This landing ground is not now maintained.

Correction.—Delete name and symbol from the map.

(k) *Khatatba*.—A landing ground has been established.

Correction.—Insert landing ground symbol and name "Khatatba" at Lat. 30° 21' N., Long. 30° 46' E.

(l) *Abu Zabal*.—A W/T station has been established.

Correction.—Insert symbol for W/T station, and name "Abu Zabal" at Lat. 30° 16' N., Long. 31° 22' E.

(m) *El Wasta*.—The name has been changed to "El Rus."

Correction.—Delete "Wasta." Insert "Rus."

(n) *Aboukir*.—This is now a customs aerodrome.

Correction.—Add the letter "D" under the name.

(o) *Moascar (Ismailia)*.—This is now a customs aerodrome.

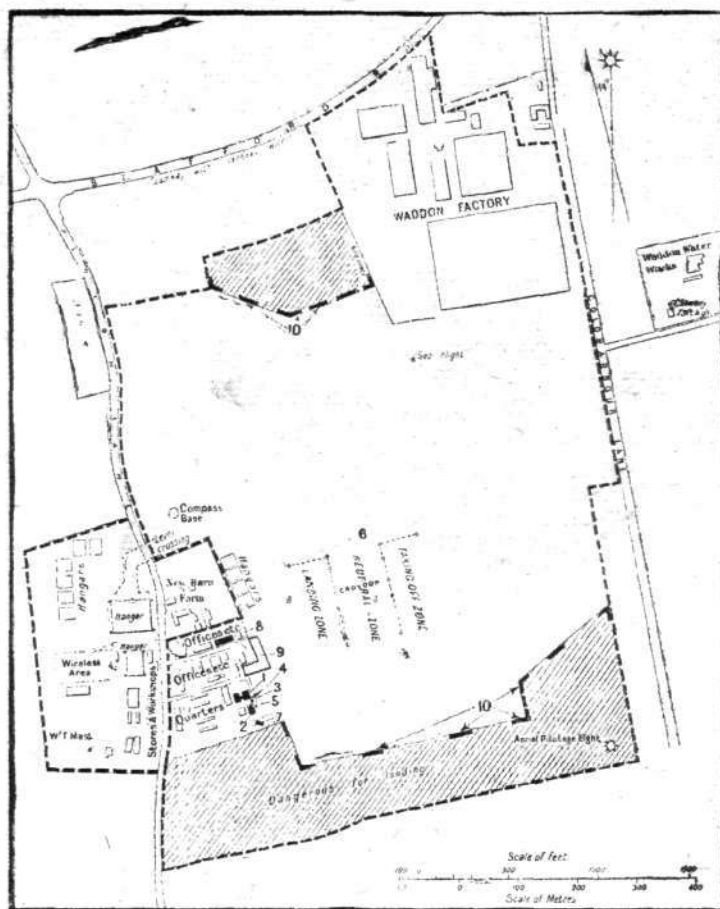
Correction.—Add the letter "D" under the name.

(p) *Correction Date*.—This should be amended to March, 1924.

(No. 24 of 1924.)

Croydon Aerodrome ; Marking of Bad Landing Areas]

It is hereby notified that the two areas (one on the N. and the second on the S. side of the aerodrome) on which it is



CROYDON AERODROME LANDING AREAS ;

Reference.—1. Customs. 2. C.A.T.O. 3. Control tower. 4. Wind indicator. 5. Circuit flag. 6. Illuminated night landing sign and name marking. 7. Meteorological office. 8. Garage. 9. Public enclosure. 10. Limits of safe landing area.

dangerous for aircraft to land have now been defined by chalk markings, as shown on the plan appended. This plan supercedes that published in Notice to Airmen No. 38 of 1922.

(No. 25 of 1924.)

ROYAL AIR FORCE CADETS

THE Air Ministry announces that an examination for the entry into the Royal Air Force of cadets, with a view to their becoming permanent commissioned officers after a two years' course at the Royal Air Force Cadet College, Cranwell, Lincs., will be held on June 10 and following days.

The number of cadetships open to competition on this occasion, owing to the authorised expansion of the Air Force, will not be less than 35. This number will include any cadets who may be awarded King's Cadetships or Honorary King's Cadetships, and one prize cadetship. In addition, one Wakefield Scholarship of the value of £75, tenable for one year, will be offered for competition among candidates whose parents or guardians are in reduced circumstances, with preference to cases due to the late War.

The closing date of entry for this examination is April 24, and no form of entry will be accepted under any circumstances after May 8. Applications should be made to the Secretary, Civil Service Commissioners, Burlington Gardens, W. 1.

Candidates must be physically fit and have attained the age of 17½ and not exceeded the age of 19 on July 1, 1924. An official medical examination will take place in London about the same date as candidates attend for the educational examination.

It has been found in previous examinations that certain

candidates have failed to attain the standard of fitness required owing, it is thought, to their having neglected to take proper exercise while preparing for the educational examination, and it is therefore desired to direct the attention of candidates to the care of their health in this respect.

Parents and guardians are strongly recommended, in order to lessen the chance of subsequent disappointment, to have their sons or wards examined previous to their becoming candidates for commissions in the Royal Air Force, by a preliminary Royal Air Force Medical Board or by a medical practitioner.

The entrance examination is the same as that for the entry of cadets to the Royal Military Academy, Woolwich, and the Royal Military College, Sandhurst, the examination for entry to the three colleges taking place simultaneously.

Candidates entering their names for the examination for either of the two Army Colleges can also submit their names at the time of application for entry into the Royal Air Force Cadet College as a second preference.

Competition will be conducted in accordance with the regulations for the Royal Air Force (Cadet) College, Air Publication 121, which may be obtained from His Majesty's Stationery Office, Imperial House, Kingsway, W.C. 2, price 1s.

THE INSTITUTE OF NAVAL ARCHITECTS

At the annual meeting of the Institute of Naval Architects, which was held at the United Services Institution on Wednesday morning, April 9, the Duke of Northumberland presiding, Admiral-of-the-Fleet Sir Doveton Sturdee gave an address on "Strategical and Tactical Considerations Governing Warship Design," in which he made several references to aviation.

The strength, he said, of the British Navy from 1815 to 1914 was a great asset in the preservation of world peace, and ensured for this country naval peace for a century. That superiority we had, with our eyes open, abandoned so far as battleships and aircraft-carriers were concerned, and therefore strategically we had placed ourselves at a disadvantage in relation to any great Power that had an equal force of battleships, particularly if that Power was a Continental nation and was self-contained, while we, with our communications to overseas Dominions, had some 80,000 miles of ocean routes to defend.

In summarising the requirements of a British cruiser he stated that each one should carry and be able to launch two aeroplanes, and that anti-aircraft defence guns should be provided, particularly for cruisers intended to accompany battle fleets. He also advocated fresh efforts to make aircraft-carriers less liable to destruction by torpedoes, by ample sub-division or by whole or partial adoption of the bulge methods.

Rear-Admiral Clifton Brown, who spoke after Sir Doveton Sturdee, said he thought in future the question of aircraft-carriers might not be so important, for probably battleships would have to carry their own aircraft.

At the dinner of the Institution, held the same evening at the Connaught Rooms, aviation matters were again referred to. The Duke of Northumberland, who presided, in proposing "The Naval and Air Forces of the Empire," said he thought the problems of Imperial defence had never been more complicated than they were at present, and that the fact that they were celebrating in this toast both the Navy and the Air Force reminded them that the relations between the two services had never yet been definitely determined.

Viscount Chelmsford, First Lord of the Admiralty, responding for the Navy, said, referring to the Air Force and the Navy, that each had much to bring to the other. The Air Force was able to bring along all that great popular enthusiasm which was behind it, as well as the concentrated results of the study of the science of aviation. On the other hand, the Navy could bring a long experience in technical problems which in many respects would confront the Air Force in the near future, and it could bring to the junior service a body of technical experts which was second to none in the world.

In replying for the Air Force, Lord Thomson, Secretary of State for Air, said the Air Force was the Cinderella of the Services, but he had found that the relations between the Air Force and the Admiralty were entirely sisterly, and he had noticed very little of that jealousy which one associated with Cinderella's elder sisters. As a soldier, he was once disposed to regard the Air Force as an auxiliary or subsidiary weapon. But he had been converted, and often, in his present position, he thought of what the force meant to this country. He realised only too well that, if another European war should once again occur, the first brunt of that war would fall upon our airmen—that they would fight the earliest phase, and indeed it might well become the final phase. It was for that reason that to men of light and leading, of public spirit and of science he always went as something of a suppliant. He asked them to do all that they could to furnish experience and advice to this young force.

Fortunately, there was also civil aviation, which was one of the most baffling problems that presented itself today. It could not be run without large subsidies from the State. But there were many directions in which he looked for improvement. We had to have a heavier-than-air service linking up our business men in all parts of Europe; we had got to have an airship service linking up the Empire. But a third way which appealed to him very much was the encouragement of individual flying.

What he believed had got to come to pass in regard to civil aviation, he continued, was that we must produce some sort of flying apparatus which would enlist the activity of young men who were ready to break their necks at doing something, but wanted that something to be fairly cheap. He believed the future of aviation would be found in the encouragement of the habit of the air. We became a great maritime state because our people had the habit of the sea. We had got at all costs to encourage the habit of the air, and he believed that in those three methods we would find the key of the situation. We would never maintain our supremacy as a world-power unless we were as supreme, in a commercial sense, in the air as we had hitherto been upon the sea.

On April 10 the Institution resumed the conference, when, amongst other speakers, Commander C. D. Burney read a paper on "The Development of the Airship, with Special Reference to Transport."

Commander Burney stated that before the airship could be adopted as a reliable means of transport it was necessary that many difficulties should be met, and the aeronautical engineer had to face four main problems—(1) the means of flotation; (2) the provision of a structure which, while adapted to utilise the means of flotation for the purpose of lifting weight, was also suitable for propulsion through the air at high speeds; (3) the means of propulsion itself; and (4) the handling and operation of the completed airship on a commercially economic basis.

Hydrogen had, he continued, remained for many years the only suitable means of obtaining the required displacement; but much attention had recently been drawn to the use of helium for this purpose on account of its inert properties. An airship filled with helium had a lift 7 per cent. less than one of equal displacement filled with hydrogen. This loss of lift would mean a loss in potential earning capacity of no less than £84,000 per annum in airships of the size which would be used on the Indian route. So far as was known at present there were no available sources of helium of any magnitude within the limits of the British Empire. The cost of its production and transport would alone be so great as to render any commercial scheme an impossibility. It was, therefore, of primary importance that we should develop a type of airship which should be absolutely safe and efficient when filled with hydrogen.

In reference to the handling and operation of airships on a commercially economic basis, Commander Burney said that he had come to the conclusion that the smallest size of ship that could be profitably employed on commercial work must have a displacement of not less than 5,000,000 cubic ft., giving a gross lift of approximately 150 tons.

Of this 150 tons some 75 were available for lifting fuel, crew, passengers and mail cargo, etc. These ships would have a cruising speed of 80 miles an hour, the power installation consisting of seven interchangeable units of a maximum 600 b.h.p. each. The maximum economical length of flight was between 2,000 and 2,500 miles. The actual route which was being planned was that from England to India, where the terminal station would be Bombay. This route would be flown in two portions, the halting place being at Cairo, dividing the journey roughly into London to Cairo 2,300 miles, Cairo to Bombay 2,400 miles. The station at Cairo would consist of a mooring station only; that in India of a mooring station and shed.

That speeds and displacements would increase rapidly was already inevitable. Indeed, they confidently expected to exceed speeds of a hundred miles an hour in the near future. They were now at work on an interesting development which would allow trial routes to be run without the capital expenditure involved in setting up permanent mooring bases. The quickest way to Western Canada, China and Japan lay almost directly over the North Pole, and that had only to be mentioned to realise the immense advantages which such mobile bases would give us. And in time of war, when airships armed with their own squadrons of fast fighting aeroplanes, released and recovered at will, formed the eyes of the fleet which was guarding the great trade routes, such bases would be of indispensable use to the Navy.

past few days, however, meetings have been held between Sir Eric Geddes, representing Imperial Airways, and the pilots, resulting, it is reported, in some progress towards a settlement.

Imperial Airways Dispute

UP to the time of writing no agreement had been announced *re* the Imperial Airways dispute. During the

THE ROYAL AIR FORCE

London Gazette, April 1, 1924

Medical Branch

Flight-Lieut. V. R. Smith is granted permanent commission in rank stated; April 2. Flight-Lieut. (Hon. Squad-Leader) G. D. Kerr relinquishes his temp. commn. on ceasing to be employed, and is permitted to retain rank of Flight-Lieut.; March 19. Flying-Offr. J. M. Rourke, M.B., relinquishes his short service commn. on account of ill-health; April 2. Flight-Lieut. Dumaresq Le Bas is transferred to Reserve, Class D.2; April 1.

Reserve of Air Force Officers

The following are granted commissions in General Duties Branch as Pilot-

Offrs. on probation; April 1:—Class A: J. M. Clarke, J. K. Reid. Class B: T. N. Drake.

Gazette March 4, concerning Flying-Offr. R. C. Williams is cancelled. The following Officers are confirmed in rank with effect from the dates indicated:—Flying Offrs.:—W. F. P. Williamson; March 6. A. L. Monger; March 19. N. H. Woodhead, D.S.C.; April 1. Pilot Offrs.:—R. J. Weaver; March 14. H. W. Frith; March 16. I. R. Taylor, March 19.

Memorandum

The permission granted to Lieut. J. F. Nunn to retain rank is withdrawn on his enlistment in the Army.

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the R.A.F. are notified:—

General Duties Branch

Wing Commanders.—J. T. Babington, D.S.O., and A. B. Gaskell, D.S.C., to R.A.F. Staff College, Andover, for Staff Course (No. 3); 5.5.24.

Squadron Leaders.—E. L. Tomkinson, D.S.O., A.F.C., to H.M.S. *Pegasus*, to command R.A.F. Unit. 21.3.24. A. C. Maund, C.B.E., D.S.O., T. W. Mulcahy-Morgan, M.C., T. E. B. Howe, A.F.C., R. Collishaw, D.S.O., O.B.E., D.S.C., D.F.C., N. H. Bottomley, A.F.C., F. H. M. Maynard, A.F.C., and C. J. Mackay, M.C., D.F.C., all to R.A.F. Staff College, Andover, for Staff Course (No. 3); 5.5.24.

Flight-Lieutenants.—V. Buxton, O.B.E., to No. 12 Sqn., Andover. 8.4.24. B. J. W. Brady, D.S.M., to Armament and Gunnery Sch., Eastchurch. 3.4.24. T. A. Langford-Sainsbury, A.F.C., to Egyptian Group, H.Q. 6.3.24. G. E. Ranson, to No. 24 Sqn., Kenley. 23.4.24. G. E. Livock, D.F.C., to H.M.S. *Pegasus*. 21.3.24. E. M. Pollard, G. C. Pirie, M.C., D.F.C., J. C. Slessor, M.C., L. G. S. Payne, M.C., A.F.C., J. P. Coleman, A.F.C., T. W. Elmhirst, A.F.C., J. W. B. Grigson, D.S.O., D.F.C., C. H. Keith, P. F. Fullard, D.S.O., M.C., A.F.C., J. H. Green, L. N. Hollinghurst, D.F.C., and C. J. S. Dearlove, all to R.A.F. Staff College, Andover, for Staff Course (No. 3); 5.5.24. C. A. Ridley, D.S.O., M.C., to No. 3 Sqn., Manston. 14.4.24. P. B. Hunter, to No. 14 Sqn., Palestine. 4.4.24. F. H. Laurence, M.C., to No. 2 Wing H.Q., India. 13.3.24. T. A. Langford-Sainsbury, A.F.C., to No. 208 Sqn., Egypt. 1.4.24. E. Burton, to No. 28 Sqn., India. 7.3.24.

Flying Officers.—B. H. Cook, to Aeroplane and Armament Experimental Estab., Martlesham Heath. 10.4.24. J. H. Gray, to R.A.F. Depot. 3.4.24. I. E. Brodie, to R.A.F. Base, Leuchars. 10.4.24. G. H. Stainforth, to

No. 19 Sqn., Duxford. 10.4.24. H. J. Gearing, to R.A.F. Depot, on appointment to a Short Service Commn. 1.4.24. E. P. M. Davis, A.F.C., A.M., F. H. Isaac, D.F.C., L. Martin, A. R. Wardle, A. J. Rankin, H. A. Dinnage and L. D. Stewart, all to H.M.S. *Pegasus*. 21.3.24. A. Lanman, A.F.C., to remain at Aeroplane and Armament Experimental Estab., Martlesham Heath, instead of to Schl. of Tech. Training (Men), Manston, as previously notified. H. K. Goode, D.S.O., D.F.C., to No. 1 Schl. of Tech. Training (Boys), Halton. 7.5.24. E. J. Spearing to Marine Aircraft Experimental Estab., Felixstowe. 14.4.24. (Hon. Flt. Lt.) E. L. O. Baddeley, (Hon. Flt. Lt.) K. M. Murray and R. L. Yates, to Aircraft Depot, India. 5.3.24. C. A. Elliott, to Schl. of Photography, Sth. Farnborough. 7.4.24. D. R. Sharman, M.C., to No. 56 Sqn., Biggin Hill. 23.4.24. G. Rose, to R.A.F. Depot, on appointment to a Short Service Commn. 7.4.24.

Pilot Officers.—C. G. H. E. Lumsden, to R.A.F. Base, Leuchars. 8.4.24. J. E. Doran-Webb, to R.A.F. Base, Leuchars. 10.4.24.

Stores Branch

Flight Lieutenant W. A. O. Honey, to Aircraft Depot, Iraq. 6.3.24. **Flying Officers:** W. B. Frederick, to No. 3 Sqn., Manston. 1.4.24. P. H. Wynne-Burt, to No. 9 Sqn., Upavon. 1.4.24. W. T. Lewis, to No. 58 Sqn., Worthy Down. 1.4.24. **Pilot Officer** C. W. Gore, to No. 99 Sqn., Netheravon. 1.4.24.

Medical Branch

Flight Lieutenant T. R. S. Thompson, M.B., to H.Q., Egypt, instead of to Egyptian Group H.Q. as previously notified. 15.10.23. **Flight Lieutenant (Q.Mstr.)** J. M. Maxwell, to No. 1 Schl. of Tech. Training (Boys), Halton. 8.4.24.

IN PARLIAMENT

Naval Air Arm

VISCOUNT CURZON on April 9 asked the Parliamentary Secretary to the Admiralty whether he is aware that, when the reconstruction of H.M.S. "Glorious" and H.M.S. "Courageous" has been carried out, the British Navy will possess eight aircraft carriers with a carrying capacity for carrying 400 aeroplanes; whether he is aware that at the present moment only about 100 machines are allocated for service with the Royal Navy; what arrangements have been made for the Royal Naval Air arm to receive the necessary peace-time preparation to be ready for emergencies and possible calls which may be made upon it; and whether it is intended to pass aircraft carriers into service without their establishment of machines?

Mr. Ammon: If the two seaplane carriers "Ark Royal" and "Pegasus" are included, the Navy will possess eight aircraft carriers when H.M.S. "Glorious" and H.M.S. "Courageous" are completed. The carrying capacity as stated in the question, is considerably in excess of the number of aircraft that these vessels will be able to accommodate. The number of machines quoted as allocated at the present to the Royal Navy is approximately correct if reserves are excluded. Arrangements have been made for the provision of the number of aircraft necessary in the near future in view of the accommodation that will become available. The answer to the last part of the question is in the negative.

Air Service in India

LIEUT.-COMMANDER KENWORTHY, on April 10, asked the Under-Secretary of State for Air whether the Civil Aviation Department has been approached by the Messageries Transaériennes, a French company subsidised by the French Government, with a view to a joint air service to India, by means of hydroplanes from Marseilles, via Alexandretta, to Bombay; if so, whether, in view of the halving of the expense to ourselves of such a service, the Air Ministry is giving careful and sympathetic attention to this offer; and what has been the cause of the delay heretofore?

Mr. Leach: The answer to the first and second parts of the question is in the affirmative, but under the terms of the agreement with the Imperial Air Transport Company, the Air Ministry is precluded, as from April 1, 1924, from granting subsidies to any other commercial company in respect of a heavier-than-air transport service in Europe, including the Mediterranean Sea. So far, therefore, as the western portion of the proposed Marseilles-Bombay service is concerned, the only way in which British assistance could be given would be by means of some working arrangement between the new Imperial Company and the "Messageries Transaériennes." It has, therefore, been necessary to await the information of the new Imperial Company, and no avoidable delay has occurred.

Lieut.-Commander Kenworthy: Will an answer now be sent to this company? Does my hon. friend realise that here is one opportunity in which we can co-operate with our French friends very successfully?

Mr. Leach: There is no doubt that the company and our French friends know our difficulties in this matter quite well.

Prague International Air Exhibition

LIEUT.-COMMANDER KENWORTHY asked the Under-Secretary of State for Air if he is aware that the third international air exhibition will be held in Prague on May 31 to June 9, under the patronage of the President of the Republic, and that no arrangements have been made for exhibits from this country, although practically every other important country in the industry is represented; and whether any steps have been taken to represent the British aircraft industry in the exhibition to be held in this country?

Mr. Leach: The question referred to by the hon. and gallant member has been under discussion with the Society of British Aircraft Constructors for some time past, and I hope that the industry will be found to be represented at the Prague exhibition, but no decision in the matter has yet been reached. If the last part of the question refers to the Wembley exhibition, I understand that some of the British aircraft firms are to be represented there.

Lieut.-Commander Kenworthy: Is the hon. gentleman satisfied with the activities of the civil branch of his department, because I certainly am not?

Mr. Leach: The point is, which are the activities with which the hon. member is dissatisfied?

Lieut.-Commander Kenworthy: This is one of them.

Sir H. Brittain: Will the hon. gentleman do what he can to expedite this matter, as the exhibition is open at the end of next month, and France, Italy, Holland and Germany have all thought it worth their while to send exhibits?

Mr. Leach: I have been interviewing representatives of the trade in order to secure something being done in this matter, and I think that they will admit that the responsibility for delay is theirs, and not ours.

Empire Airship Service

SIR H. BRITTAIN asked the Under-Secretary of State for Air whether any decision has yet been reached with regard to proposals for an Empire airship service?

Mr. Leach: The answer is in the negative.

Viscount Curzon: Could the hon. gentleman give me some idea as to when the Government will be able to arrive at a decision on this matter?

Mr. Leach: As a very large sum of money is involved in this decision, the Committee is taking great pains to examine the whole problem very carefully.

Waddon Aeroplane Factory Tests

MR. MELLER asked the Financial Secretary to the Treasury whether he has received complaints from the residents in the neighbourhood of the Waddon aeroplane factory of the great nuisance caused by testing aeroplane engines; whether it is proposed to erect an underground testing place; and, if so, when the work is to be put in hand?

The Financial Secretary to the Treasury: The answer to the first part of the question is in the negative. The factory is leased to the Aircraft Disposal Company. I am making enquiries of that company, and will let the hon. member know the result.

Air Estimates

LIEUT.-COLONEL MOORE-BRABAZON asked the Under-Secretary of State for Air whether he is aware that in the Air Estimates for 1923-24 the sum of £5,594,000 was allocated for technical and warlike stores; how much of this sum was actually expended on technical and warlike stores; and to what purpose the unspent surplus has been applied?

Mr. Leach: The answer to the first part of the question is in the affirmative; to the second that, so far as can at present be ascertained, the amount taken in the Estimates for the purchase of technical and warlike stores, £5,594,000, is estimated to have been overspent. The last part of the question does not, therefore, arise.

Lieut.-Colonel Moore-Brabazon asked whether the sum of £940,800 was allocated for the purchase of complete aero engines in the Air Estimates of 1923-24; how much of this sum was actually expended in the aircraft industry; and to what purpose the surplus was applied?

Mr. Leach: The answer to the first part of the question is in the affirmative; to the second, that considerably more than £940,800 was expended in the aircraft industry on purchase of aero engines, the provision under this sub-head having been overspent.

Lieut.-Colonel Moore-Brabazon asked whether the sum of £1,913,400 was allocated in the Air Estimates of 1923-24 to the purchase of complete aeroplanes; how much of this sum was actually expended in the aircraft industry; and to what purpose the unspent surplus has been applied?

Mr. Leach: The answer to the first part of the question is in the affirmative; to the second, that considerably more than £1,913,400 was expended in the aircraft industry on purchase of aircraft, the provision under this sub-head having been overspent.

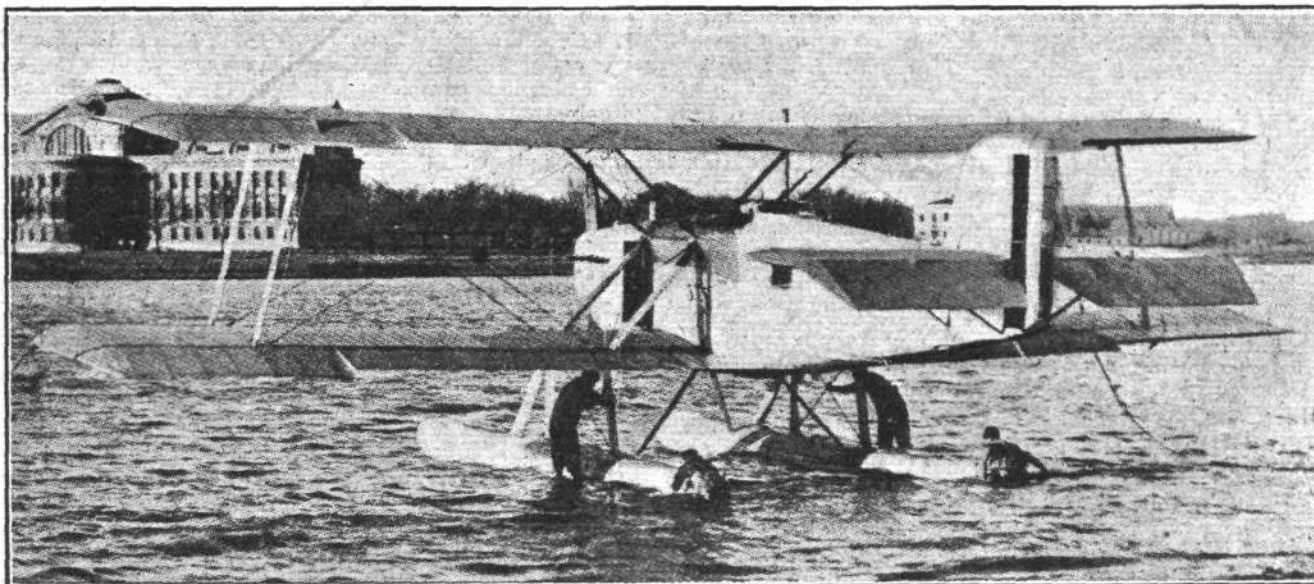
THE U.S. NAVY C.S. "THREE-PURPOSE" BIPLANE

We show in the accompanying illustration a new type of machine constructed for the U.S. Navy Air Service by the Curtiss Aeroplane and Motor Co. The C.S. "Three-Purpose" plane, as it is called, combines the functions usually performed by three distinct types—bombing, torpedo launching, and long-range scouting.

It is claimed for this machine that it is the lightest plane for its horse-power yet constructed, and that it is able to fly with more than its own weight as a load. It has been usual to construct individual types to meet the different functions

Provision is made for launching the C.S. into the air from a catapult mounted on the deck of a battleship, whilst it will also operate from the flying deck of an aircraft carrier. Fully loaded for a long flight, the C.S. carries 15 barrels of petrol and one barrel of lubricating oil, giving a range of about 2,200 miles non-stop. Its landing speed is 55 m.p.h., and the maximum speed, as a landplane, is 105 m.p.h. The weight of the machine is about 4,000 lb.

From our illustration of this machine it will be noticed that the top plane is of smaller span than the lower, which



THE U.S. NAVY C.S. "THREE-PURPOSE" BIPLANE: A convertible land or sea-plane (650 h.p. Wright T.2 engine), suitable for bombing, torpedo-launching, and long-range scouting.

that this machine can fill, so that the C.S. marks an important departure from past practice in the design of machines used for operations with the fleet.

The C.S. plane is fitted with a 650 h.p. Wright T.2 engine, and can be rapidly converted from a seaplane into a landplane, or *vice versa*. It is mainly constructed of steel and duralumin, an exception being in the wings, which are of wood and fabric construction. The wings are designed so as to fold back, thereby enabling the machine to be stored in the smallest possible space.

measures 56 ft., and the single pair of interplane struts each side slope inwards. The wide spacing of the landing chassis (wheels or floats), giving ample room for the mounting of the torpedo or bombs, is also shown.

The C.S. is fully equipped with "all modern improvements," having a radio set for both sending and receiving, two machine guns, lights in the cockpits, and navigation lights for night flying.

The first of these machines was recently tested at the naval air station at Anacostia, D.C., and gave very satisfactory results.

COMPANY DOINGS

D. Napier and Son

At the adjourned annual meeting of D. Napier and Son, Ltd., which was held on April 10, Mr. H. T. Vane, C.B.E., who presided, said, in the course of his address, that they had practically been engaged on one type of aero engine—the 450 h.p. Napier "Lion"—which had certainly earned for itself the reputation of being the best aero engine in the world. Their designers and engineers were constantly giving careful attention and thought to developing and improving this engine, with a view to retaining its unique position.

The Napier "Lion" was the only British aero engine fitted to an aeroplane to have won the Aerial Derby, and the only British engine fitted to a seaplane to have won the Schneider Cup. It was the same type of Napier engine which had been in daily use in the British transcontinental air services. One engine on this service had flown now well over 100,000 miles, representing more than 1,000 hours' flying time. He further stated that the majority of new-type aeroplanes produced for the British Air Ministry were being fitted with the Napier "Lion" engine.

They had been fortunate, he continued, in securing orders, not only from our own Government, but from several foreign Governments and aircraft manufacturers abroad, and were extending their efforts in this direction with a view to keeping a steady production.

The changes of Governments which had taken place rather frequently in recent times, he said, had had the effect of delaying the placing of orders from the British Government, with a consequently adverse effect for steady flow of production necessary in a business like theirs, where skilled labour was employed extensively. He hoped, however, that

matters would improve in this direction for the future. The 1,000 h.p. Napier aero engine known in the Air Force as the "Cub" had been particularly successful recently in passing the British Government type test, which consisted of running the engine for 49 hours at nine-tenths of its normal horse-power, then one hour normal speed and power, half an hour slow speed, one hour high speed, and one hour high power. It was the highest horse-powered engine in the world to have passed such a strenuous test, and he thought their designers and engineers were to be congratulated upon the success of their efforts.

They were proud to have brought such distinction to British engineering, and he hoped as a result they would, in due course, be favoured with instructions which would enable them to put this engine on a production basis.

Mr. Vane went on to say that they had other important developments in hand, but it would be understood that in a business like theirs it was not desirable to disclose these publicly. He mentioned it because he wanted it to be understood that they were not resting at the point they had reached, but still looked to the future, with a view to retaining the excellent reputation already won by the company's productions.

In conclusion, he said he would like to pay a tribute to the way in which their staff and workpeople had put their shoulder to the wheel during the past year and right up to the present time. There had been a return of the old spirit of co-operation and pride taken in work, which went so far to making a business like theirs successful, and he took this opportunity of recording the directors' appreciation of their efforts.

AIR POST STAMPS

By DOUGLAS B. ARMSTRONG.

"Aero-philosemy"

DISCUSSING the relationship between Philately and the collecting of air-post covers, etc., that eminent authority Dr. L. Morel, of Paris, sets forth in a well-considered paper, the essential differences of the two cults, which though closely akin are yet quite distinct. "I must emphasise," he writes, "that aero-philately is *not* a side track of Philately; so little in fact, that I am willing to undertake to exhibit an interesting aero collection without a single air stamp. The stamp itself is but an additional touch in a collection of aerogrammes."

He continues: "The term 'aero-philately' is an unhappy one, and though I fear that it is due to my own pen, I would recall it gladly, for its meaning is too closely allied to the collecting of postage stamps. The right word is 'Aero-philosemy,' for which I have to thank Mr. Duffy, who has convinced me of my error. This word 'Aero-philosemy' (*philos*, lover of; *semeion*, a seal) defines far better than 'aero-philately' the objects of our researches: the marks, cancellations, stamps, postmarks or vignettes which bear witness to the air transport of a card or letter. The particular interest in aero-philosemy is in the closest study into historical circumstances, political or economical, which necessitated the air flight of the cover or card. If the circumstances are commonplace, such as aviation meetings or the exploitation of some main line of traffic, the flown cover is necessarily commonplace, but if they are exceptional, exemplified by the trans-Atlantic flights and those during the sieges of Paris and Metz, the aerogrammes attain their real value. They become pages of history, relics and documents for archives."

Far Eastern Air Stamps

FROM latest advices it would appear that the four Russian postage stamps overprinted with the device of an aeroplane in red and surcharged with a premium of 20 gold kopees, briefly mentioned in this column in the latter part of last year, were, in fact, used for air postage, although at the time the contrary was asserted. It is understood that they were issued at Vladivostok, on July 28th, 1923, during an aviation week organised by the Maritime Commission in aid of the Famine Relief Fund. Letters franked with these special aero-stamps are said to have been carried by hydroplane between the Siberian port, Nicolsk-Oussouriiski and Spask on the day following that on which they were placed on public sale.

Polish Pigeon Post

THANKS to M. Gryzewski of Warsaw, we are able at last to give some particulars of the Polish pigeon post service, concerning which a correspondent recently enquired. It appears to have been a private venture, under the control of the Pigeon Post Publicity Company of Kattowitz (Upper Silesia), for the convenience of government officials and newspaper correspondents. About 450 carrier pigeons were sent to Kattowitz for this service, which, commencing operations on August 26, 1923, lasted but a very short time. Some 50 messages in all are believed to have been flown, a considerable proportion being lost. The pigeon-grammes were impressed with a special cachet, in violet ink, reading "DEPESZA POCZTA GOLEBIA" (Pigeon Post Despatch), in two lines.

New U.S.A. Postal Flight

THE latest addition to the already extensive list of American air post covers emanates from Santa Rosa (California), between which and San Francisco an experimental air post flight was successfully operated on February 27, 1924. Letters carried on the flight were rubber-stamped "Air Mail Service" in the top right-hand corner immediately above the stamp.

Aero-Philatelic Club

THE first annual report of the Aero-Philatelic Club indicates satisfactory progress arising out of its initial twelve months' activities. Seven ordinary meetings were held, at which papers were read and displays given of considerable interest and value. The accounts show a useful balance in hand, whilst air stamps and covers to the value of nearly £400 have been circulated in the Society's exchange packet. Major-General Sir William Brancker, Director of Civil Aviation, has become an honorary member, and three foreign associate members have been elected. A reference library is in process of formation.

Readers are invited to forward to the Editor of *FLIGHT* letters, etc., bearing aerial stamps or postmarks for mention in this column, as well as out-of-the-way varieties, etc.

We shall also be pleased to hear from correspondents interested in air-stamp collecting, and to answer any queries.

AIR SERVICES RE-UNIONS AND FUNCTIONS

Announcements for this column are invited, and inserted without charge.

Middle East Command, R.A.F., Third Annual Re-union

June 3.—The Third Annual Dinner of the Middle East Command, R.A.F., will take place at the Café Royal, Regent Street. Air Vice-Marshal Sir Geoffrey Salmond, K.C.M.G., C.B., D.S.O., Air Member for Supply and Research on the Air Council, who commanded the R.A.F. in the Middle East during the greater part of the War, will preside.

The re-union is for past and present officers of the flying services who served in the Middle East during the War.

On this occasion the principal guests will be Sir Samuel Hoare, Bart., M.P., late Secretary of State for Air, and Maj.-Gen. Sir Louis Bols, K.C.B., K.C.M.G., D.S.O., who is now commanding the Wessex Division, and who, during the Palestine campaign, was Chief of Staff to General Allenby.

Further particulars may be obtained on application to Flight-Lieut. C. E. H. Medhurst, Air Ministry, W.C. 2.

Royal Air Force Club—Annual General Meeting

THE annual general meeting of the Royal Air Force Club will take place at 5.30 p.m. on Monday, April 28.

SOCIETY OF MODEL AERONAUTICAL ENGINEERS

Result of Freshman's Competition

THIS competition, which was open to members of the S.M.A.E. who did not win a first prize in 1923, was held on Parliament Hill, Hampstead, on April 13, and was for any type of model aeroplane judged on the formula: average duration in secs. $\times \sqrt{\text{loading in ozs. per sq. ft.}}$

This was won by Mr. B. K. Johnson with three consistent flights of 35 $\frac{3}{4}$, 40 $\frac{3}{4}$ and 40 $\frac{3}{4}$ secs. His model was a twin pusher, weighing 8 $\frac{1}{2}$ ozs., span 38 ins., and loading 4.8 ozs. per sq. ft. 1st prize was value £1. 2nd prize, 10s., was won by Mr. L. G. Tucker, his model being a spar tractor monoplane. 3rd prize, 5s., went to Mr. W. D. Cooke, who used a compressed air tractor monoplane weighing 2 lbs. 11 ozs., span 4 ft. 10 ins., chord 9 ins., and loading 11 $\frac{1}{4}$ ozs. per sq. ft. He, however, was unluckily handicapped with a damaged engine caused by his model colliding with a tree during a trial flight.

A. E. JONES, Hon. Sec.

PUBLICATIONS RECEIVED

Intelligent Lubrication for Motor Cyclists. By Capt. S. Bramley-Moore, M.C. C. C. Wakefield and Co., Ltd., 30-32, Chespside, E.C.

Official Gazette of the United States Patent Office, March 11th, 1924. United States Patent Office, Washington, D.C., U.S.A. Vol. 320. No. 2.

Report No. 149.—Pressure Distribution over the Rudder and Fin of an Airplane in Flight. By F. H. Norton and W. G. Brown. *Report No. 174.*—The Small Angular Oscillations of Airplanes in Steady Flight. By F. H. Norton. *Report No. 175.*—Analysis of W. F. Durand's and E. P. Lesley's Propeller Tests. By Max M. Munk. *Report No. 176.*—A Constant Pressure Bomb. By F. W. Stevens. *Report No. 178.*—Relative Efficiency of Direct and Geared Drive Propellers. By W. S. Diehl. *Report No. 179.*—The Effect of Electrode Temperature on the Sparking Voltage of Short Spark Gaps. By F. B. Silsbee. U.S. National Advisory Committee for Aeronautics, Washington, D.C., U.S.A.

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